A3.02 Autonomy of the National Airspace System Questions 7/15/15

Question 1) In the solicitation, you mention the interest in "Performance driven, all-operations, human-autonomy teaming management." Can you clarify exactly what type of human-autonomy teaming you are interested in? Does this involve pilot-cockpit automation interaction, or automation in the ATC system, or automation in the context of NASA's Single-Pilot Operations (SPO) programs?

Response: The A3.02 solicitation references the "mid-term operational paradigm (2025-2035)" time frame for this subtopic. According to the NASA Aeronautics Research Mission Directorate (ARMD)'s Strategic Implementation Plan (SIP, link to document at: http://www.aeronautics.nasa.gov/strategic-plan.htm), page 55, the Outcome for 2025-2035 is indicated as "Human-machine Teaming in Key Applications" and includes reduced crew commercial operations (also known as single-pilot operations), but it is not limited to such operations. In this solicitation, we are interested in proposals exploring human-autonomy teaming across the air traffic management system (within the vehicle/cockpit, within ground operations/systems, and between the vehicle/cockpit and the ground, and operations as well as services) that will promote greater system efficiency.

Question 2) Where could we find background information on the criteria for V&V for autonomous operations you are interested in? Do those exist, or is part of the intent in that area to effectively define the V&V strategies?

Response: The V&V (verification and validation) for autonomous operations applied to the air transportation system is a new area of research. The intent of the A3.02 solicitation is to begin to define needed V&V tools for increasingly autonomous operations. The NASA ARMD website also references the National Research Council (NRC) report, "Autonomy Research for Civil Aviation: Toward a New Era of Flight" (link at: http://www.aeronautics.nasa.gov/strategic-plan.htm) as an example of background information being used to explore the trade space.

Question 3) Similarly to (1), where can we find more context regarding the interest area for the final bullet in the A3.02 solicitation: "Adaptive automation/human-system integration concepts, technologies and solutions that increase operator (pilot and or controller) efficiency and safety, and reduce workload to enable advances in air traffic movement and operations." Are we again concerned about in-cockpit automation, or otherwise?

Response: The A3.02 solicitation referring to "adaptive automation/human-system integration concepts, technologies, and solutions..." is intended to include proposals addressing any and/or all operations and services in the airspace system: in-cockpit automation, ground-based automation, combinations of in-cockpit and ground-based, and unmanned aerial systems (UAS) are all welcomed. These are new areas of research for NASA's Airspace Operations and Safety Program and the solicitation seeks such concepts, technologies, and solutions.